

## P/N: 61002-1101

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General description	
<p>The FLIR A310pt Pan &amp; Tilt is an affordable solution for anyone who needs to solve problems that require built in "smartness" such as analysis and alarm functionality. The FLIR A310pt Pan &amp; Tilt has all the necessary features and functions to build distributed single- or multi-camera solutions to cover large areas to monitor such as in coal pile monitoring and sub-station monitoring using standard Ethernet hardware and software protocols.</p> <p>The FLIR A310pt precision pan/tilt mechanism gives operators accurate pointing control while providing fully programmable scan patterns, radar slew-to-cue, and slew-to-alarm functionality. Multi-sensor configurations also include a day/night 36x zoom color CCD camera on the same pan/tilt package.</p>	
Key features:	
<ul style="list-style-type: none"> <li>• Built-in extensive analysis functionality.</li> <li>• Extensive alarm functionality, as a function of analysis and more.</li> <li>• H.264, MPEG-4, and MJPEG streaming.</li> <li>• Built-in web server.</li> <li>• 100 Mbps Ethernet (100 m cable, wireless, fiber, etc.).</li> <li>• Composite video output.</li> <li>• Precise pan/tilt mechanism.</li> <li>• Daylight camera.</li> <li>• IP66 rated.</li> <li>• IP control: FLIR PT series cameras can be integrated into any existing TCP/IP network and controlled using a personal computer.</li> <li>• Serial control interface, use Pelco D or Bosch commands over RS-232, RS-422, or RS-485 to remotely control the FLIR A310 pt.</li> <li>• Multi-camera software: FLIR Sensors Manager allows users to manage and control a FLIR PT series camera in a TCP/IP network.</li> </ul>	
Imaging and optical data	
IR resolution	320 × 240 pixels
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Field of view (FOV)	6° × 4.5°
Minimum focus distance	4 m (13.11 ft.)
Focal length	76 mm (3.0 in.)
Spatial resolution (IFOV)	0.33 mrad
Lens identification	Automatic
F-number	1.3
Image frequency	30 Hz
Focus	Automatic or manual (built in motor)
Zoom	1–8x continuous, digital, interpolating zooming on images

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<b>Detector data</b>	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–13 $\mu\text{m}$
Detector pitch	25 $\mu\text{m}$
Detector time constant	Typical 12 ms

<b>Measurement</b>	
Object temperature range	<ul style="list-style-type: none"> <li>-20 to +120°C (-4 to +248°F)</li> <li>0 to +350°C (+32 to +662°F)</li> </ul>
Accuracy	$\pm 4^\circ\text{C}$ ( $\pm 7.2^\circ\text{F}$ ) or $\pm 4\%$ of reading

<b>Measurement analysis</b>	
Spotmeter	10
Area	10 boxes with max./min./average/position
Isotherm	1 with above/below/interval
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on input of optics/window transmission and temperature
Measurement corrections	Global and individual object parameters

<b>Alarm</b>	
Alarm functions	6 automatic alarms on any selected measurement function, camera temperature

<b>Set-up</b>	
Color palettes	Color palettes (BW, BW inv, Iron, Rain)
Set-up commands	Date/time, Temperature ( $^\circ\text{C}/^\circ\text{F}$ )

<b>Imaging and optical data (visual camera)</b>	
Field of view (FOV)	57.8° (H) to 1.7° (H)
Focal length	3.4 mm (wide) to 122.4 mm (tele)
F-number	1.6 to 4.5
Focus	Automatic or manual (built in motor)
Optical Zoom	36 $\times$ continuous
Electronic Zoom	12 $\times$ continuous, digital, interpolating

<b>Detector data (visual camera)</b>	
Focal plane array (FPA)	1/4" Exview HAD CCD
Effective pixels	380,000

<b>Technical specification (pan &amp; tilt)</b>	
Azimuth Range	Az velocity 360° continuous, 0.1 to 60°/sec max
Elevation Range	EI velocity $\pm 45^\circ$ , 0.1 to 30°/sec. max

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Technical specification (pan & tilt)	
Programmable presets	128
Automatic heaters	Clears window from ice. Switched on at +4°C (39°F). Switched off at +15°C (59°F).
Ethernet	
Ethernet	Control, result and image
Ethernet, type	100 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, connector type	RJ-45
Ethernet, communication	
Ethernet, video streaming	Two independent channels for each camera - MPEG-4, H.264, or M-JPEG
Ethernet, protocols	Ethernet/IP, Modbus TCP, TCP, UDP, SNMP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Composite video	
Video out	Composite video output, NTSC compatible
Video, standard	CVBS (SMPTE 170M NTSC)
Power system	
Power	24 VAC (21-30 VAC; 24 VAC: 215 VA max. with heater) or 24 VDC (21-30 VDC; 24 VDC: 195 W max. with heater).
Environmental data	
Operating temperature range	-25°C to +50°C (-13°F to +122°F)
Storage temperature range	-40°C to +70°C (-40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)
EMC	<ul style="list-style-type: none"> <li>EN 61000-6-2 (Immunity)</li> <li>EN 61000-6-3 (Emission)</li> <li>FCC 47 CFR Part 15 Class B (Emission)</li> </ul>
Encapsulation	IP 66 (IEC 60529)
Bump	5 g, 11 ms (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Physical data	
Weight	18.1 kg (40.0 lb.)
Size (L × W × H)	460 × 467 × 326 mm (18.1 × 18.4 × 12.8 in.)
Base mounting	
Housing material	Aluminum
Shipping information	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none"> <li>Pan &amp; tilt with infrared camera including lens and visual camera</li> <li>FLIR Sensors Manager download card</li> <li>Lens cap</li> <li>Printed documentation</li> <li>Small accessories kit</li> <li>User documentation CD-ROM</li> </ul>



## FLIR A310pt 6° NTSC

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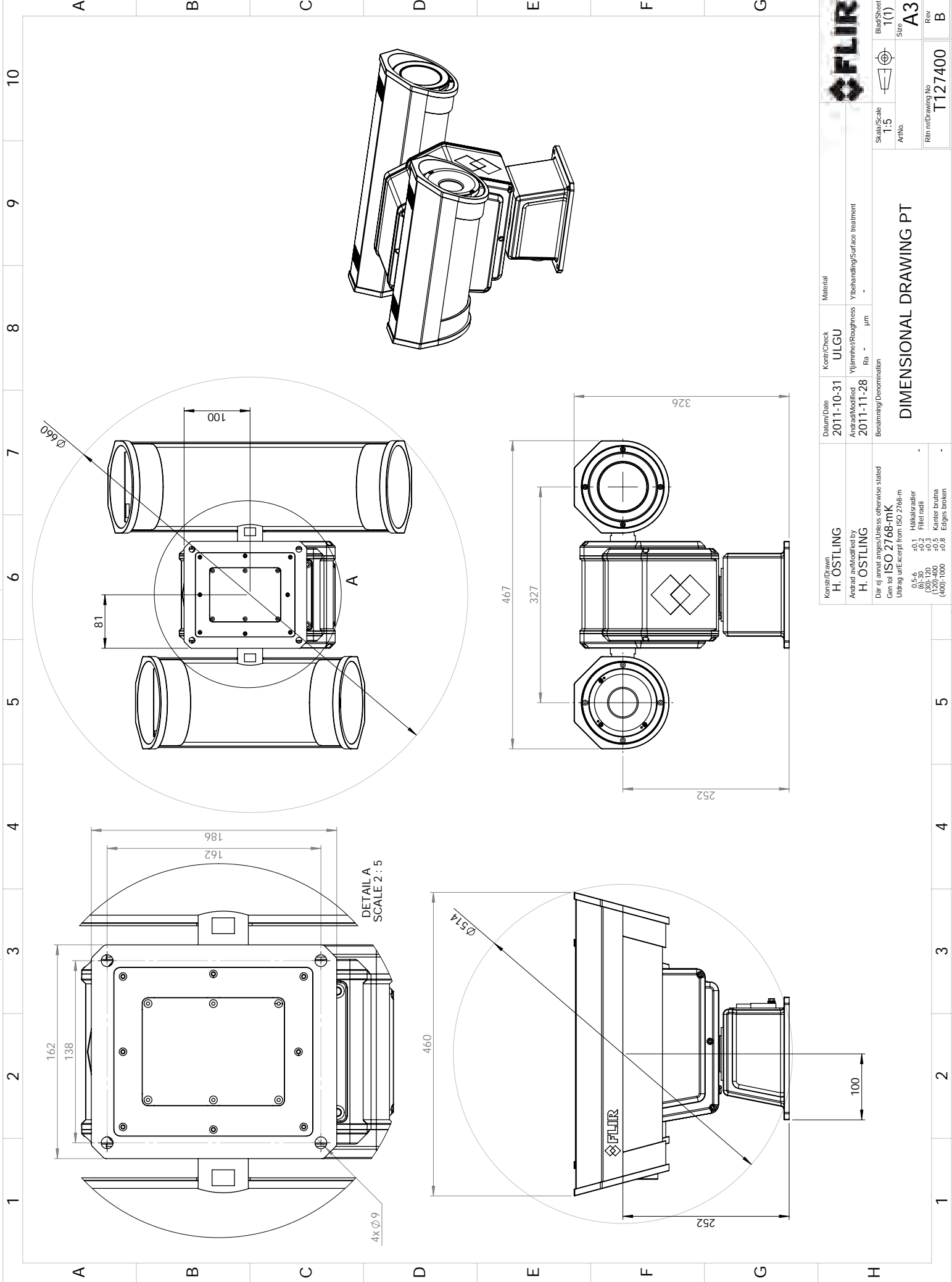
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Shipping information	
Packaging, weight	
Packaging, size	671 × 564 × 464 mm (26.4 × 22.2 × 18.3 in.)
EAN-13	7332558007242
UPC-12	845188007614
Country of origin	Sweden

### Supplies & accessories:

- T197000; High temp. option +1200°C/+2192°F for FLIR T/B2xx to T/B4xx and A3xx, A3xxf, A3xxpt, A3xxsc series
- 4119468; ADAPTER PLATE - PT-SERIES
- 223-0017-00; JOYSTICK ASSY, NEXUS CONSOLE
- 500-0461-00; PEDESTAL MOUNT ASSY - PT-SERIES
- 500-0509-00; POLE ADAPTER - PT-SERIES
- 4124857; POWER SUPPLY ASSY, 24VAC - PT-series
- 500-0460-00; WALL MOUNT ASSY - PT-SERIES
- 324-0010-00; Hard case - PT-SERIES
- 4130235; FLIR Sensors Manager, pro



**FLIR**

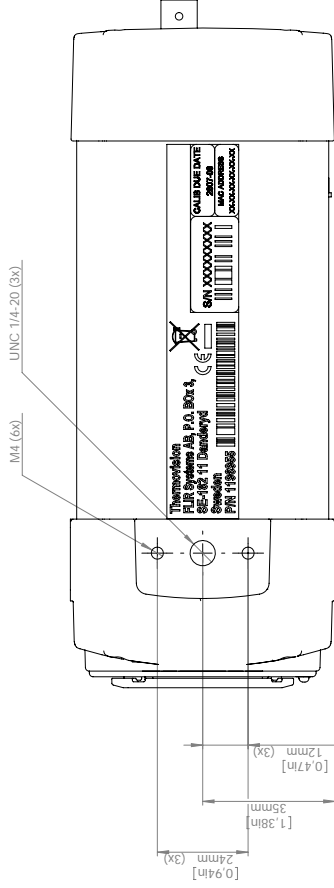
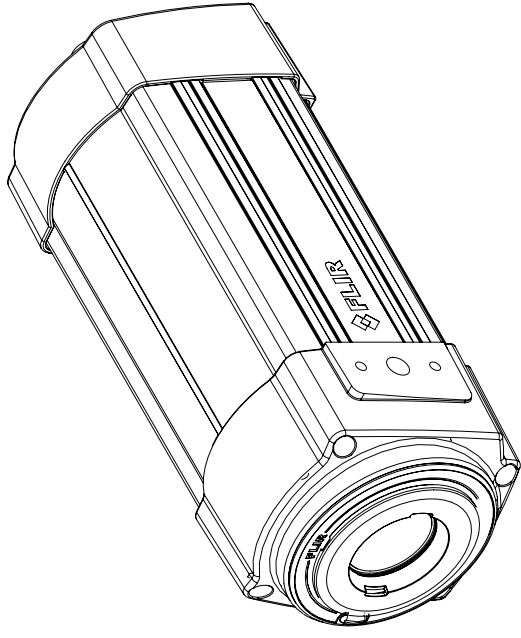
Sheet No. 1(1)  
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 Rev B

Scale 1:5  
 ArtNo. T127400  
 Rlin nr/Drawing No. T127400

Konstr/Drawn	Datum/Date	Kontr/Check	Material
H. OSTLING	2011-10-31	ULGU	
Ändrad av/Modified by	Ändrad/Modified	Ytjämnhet/Roughness	Ytbehandling/Surface treatment
H. OSTLING	2011-11-28	Ra - µm	-
Benämning/Denomination			
Där ej annat anges/Unless otherwise stated			
Gen tol ISO 2768-mK			
Utdrag utsercept från ISO 2768-m			
0.5-6 ±0.1 Hålkälsradier			
(6)-30 ±0.2 Fillet radii			
(120)-400 ±0.5 Kanter brutna			
(400)-1000 ±0.8 Edges broken			

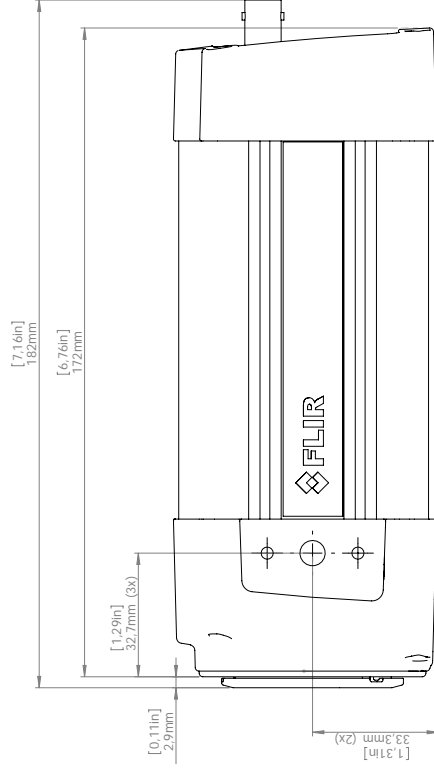
**DIMENSIONAL DRAWING PT**

# Camera with built-in IR lens f=18 mm (25°)

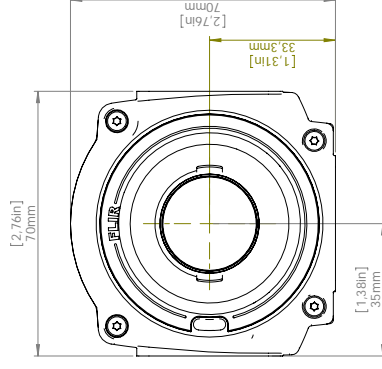
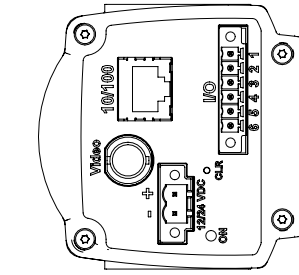


0.94in [24mm] (3x)  
 1.38in [35mm]  
 0.47in [12mm] (3x)

M4 (6x)  
 UNC 1/4-20 (3x)



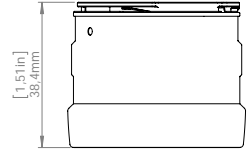
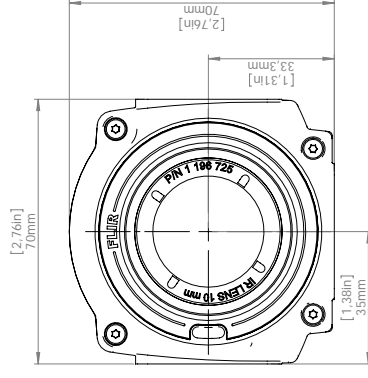
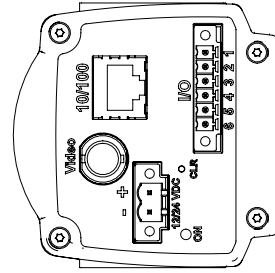
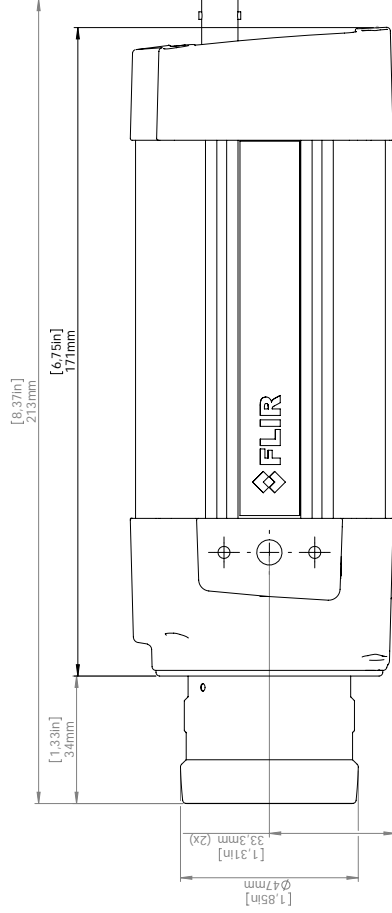
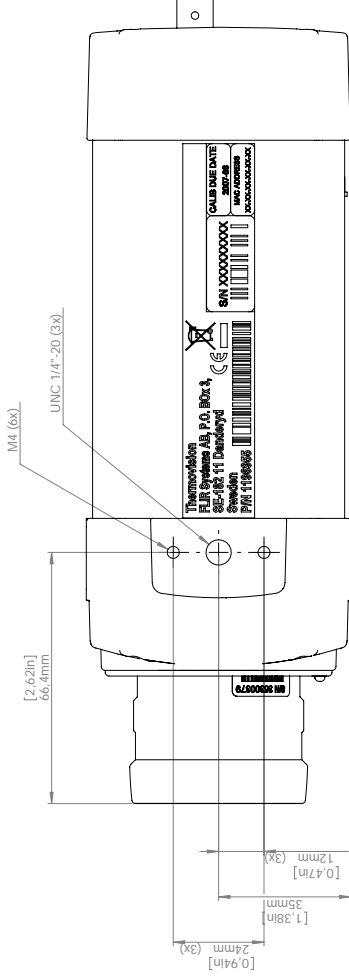
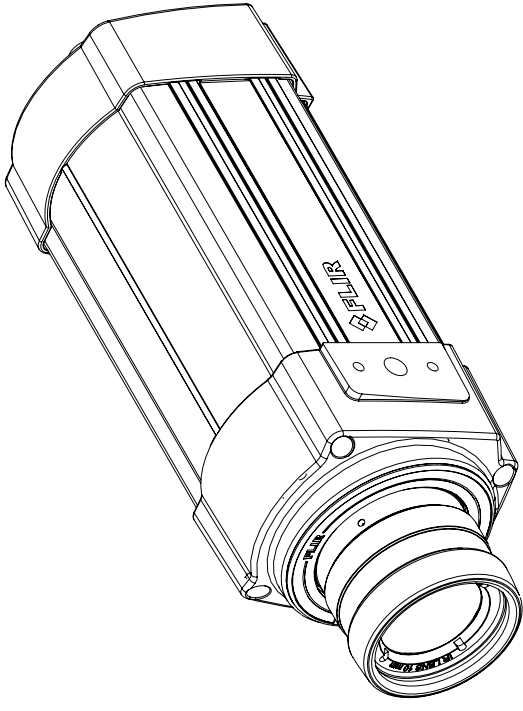
0.11in [2.9mm]  
 1.29in [32.7mm] (3x)  
 7.16in [182mm]  
 6.76in [172mm]



2.76in [70mm]  
 1.31in [33.3mm]  
 1.38in [35mm]



# Camera with Lens IR f=10 mm (45°)



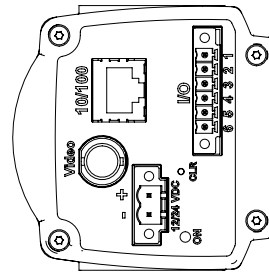
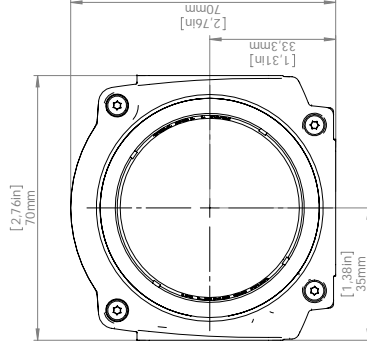
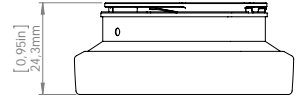
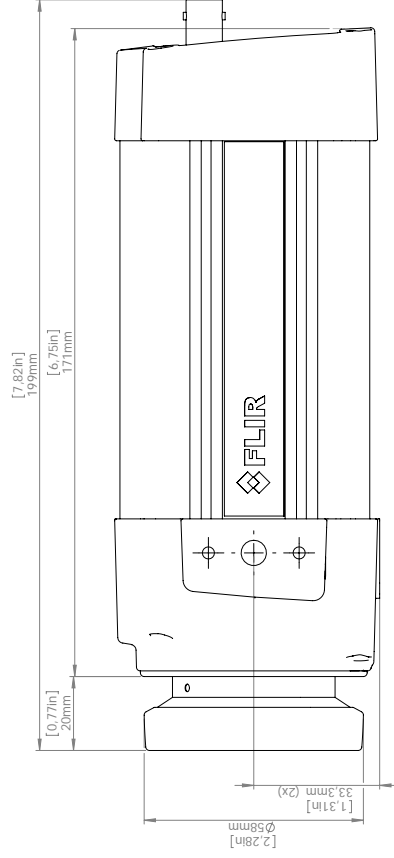
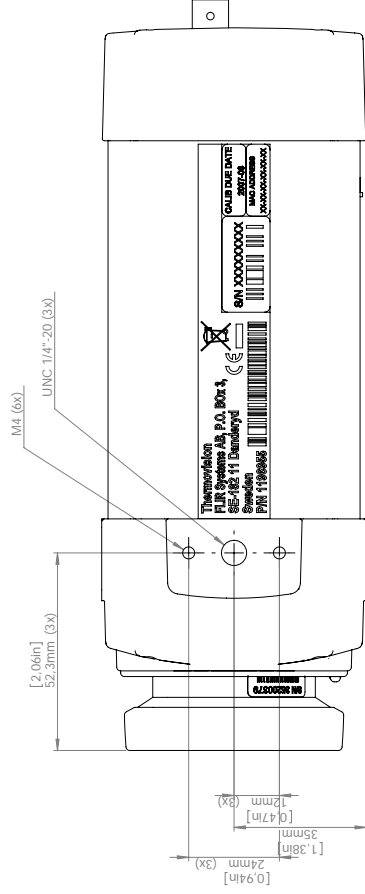
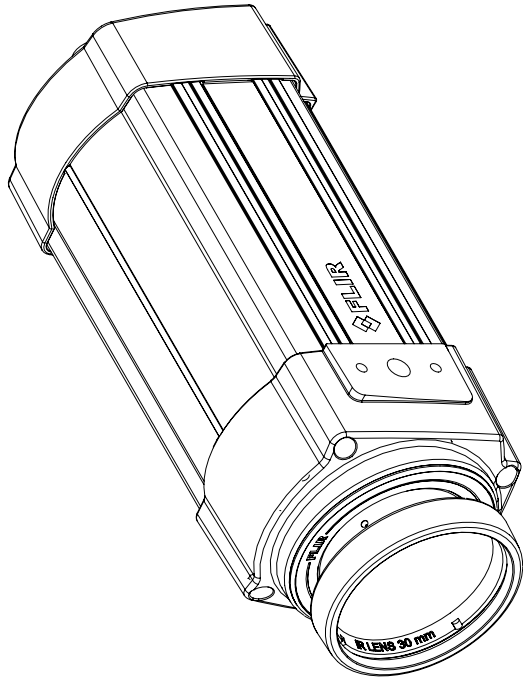
For additional dimensions see page 1

Modified 2012-04-18	Checked CAHA	Drawn by R&D Thermography	Size A3	Scale 1:1	Sheet 3(8)
Denomination Basic dimensions FLIR A3xx/SC3xx			Drawing No. T125002	Scale A	





# Camera with Lens IR f=30 mm (15°)

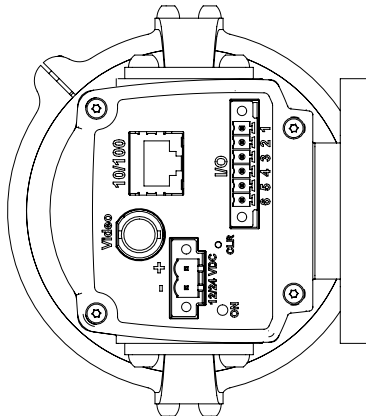
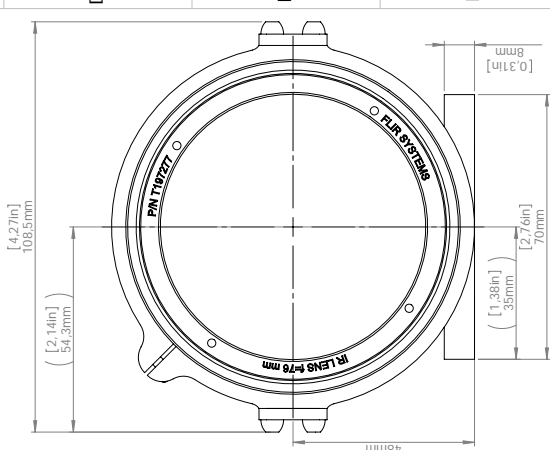
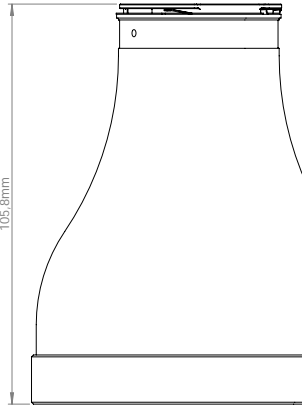
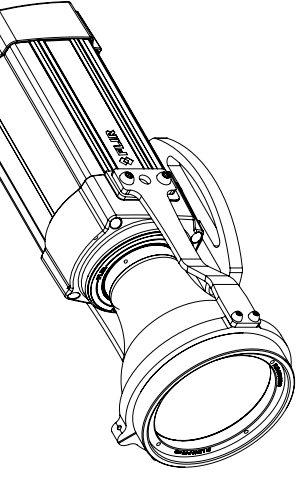
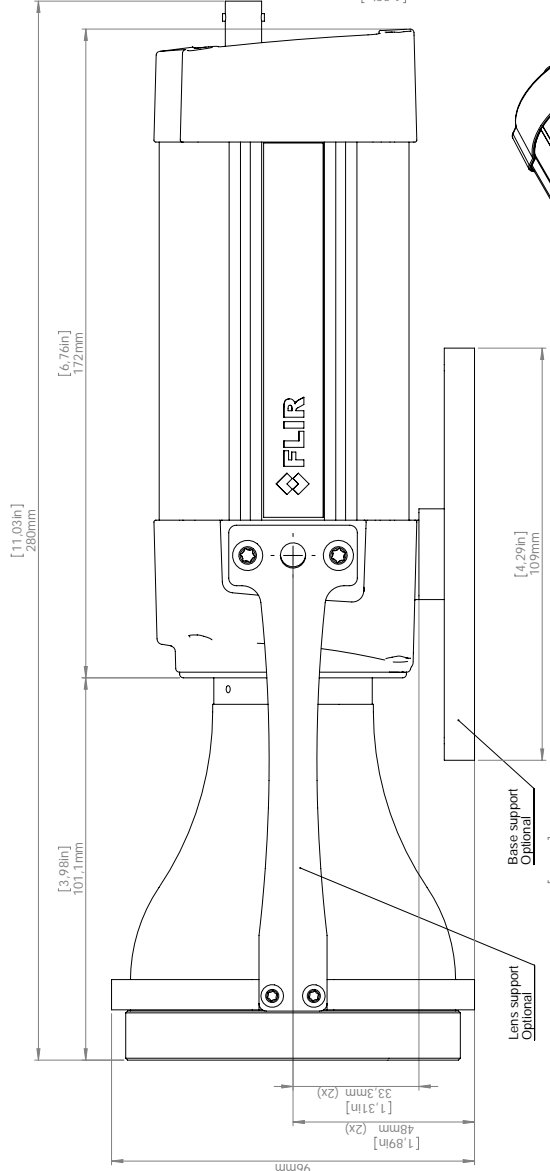
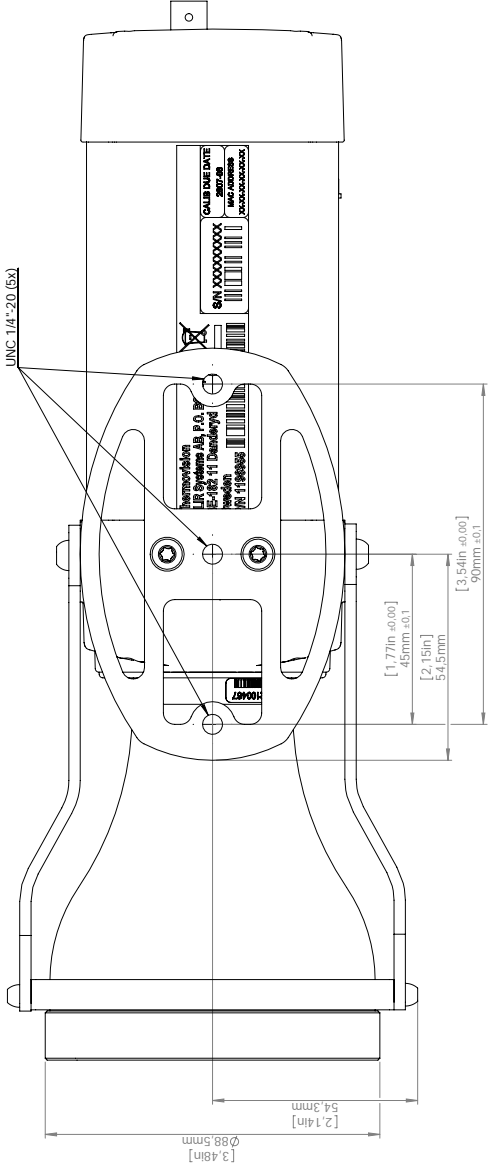


For additional dimensions see page 1

Modified 2012-04-18	Checked CAHA	Drawn by R&D Thermography	Size A3
Denotation			Scale 1:1
			Drawn No. T125002

Basic dimensions FLIR A3xx/SC3xx

# Camera with Lens IR f=76 mm (6°) incl support

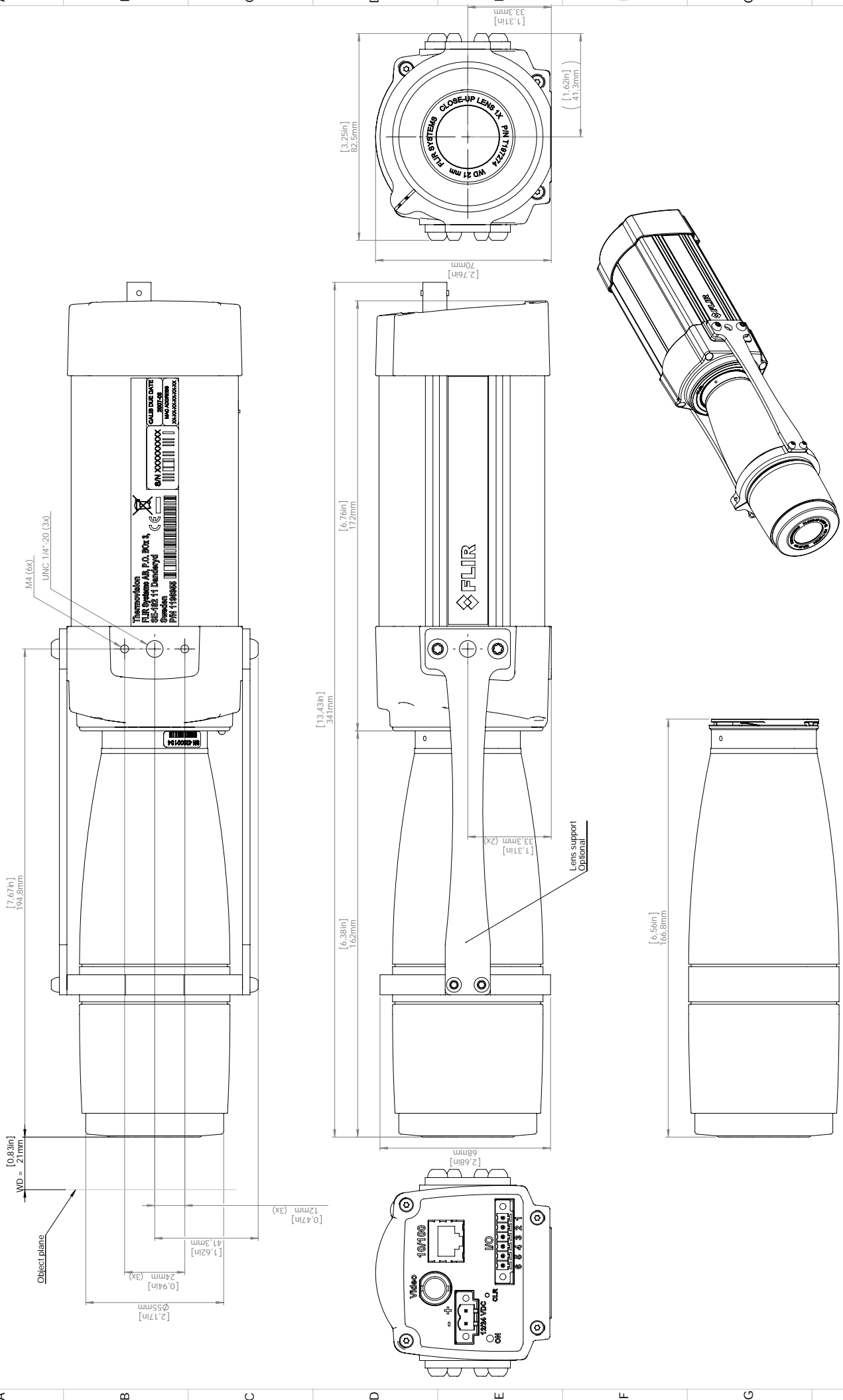


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For additional dimensions see page 1

Modified	2012-04-18	Check	CAHA	Drawn by	R&D Thermography	Scale	1:1	Sheet	5(8)	Drawn No.	T125002	Size	A
Basic dimensions FLIR A3xx/SC3xx													

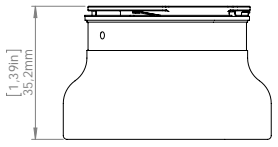
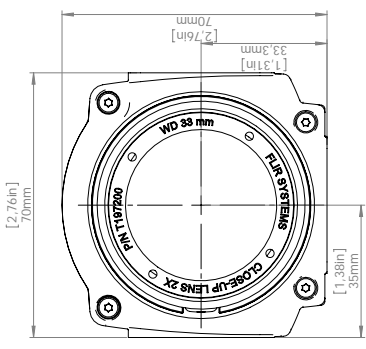
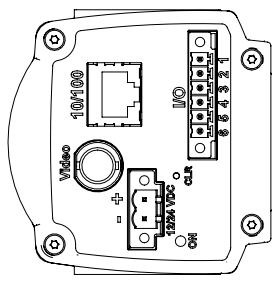
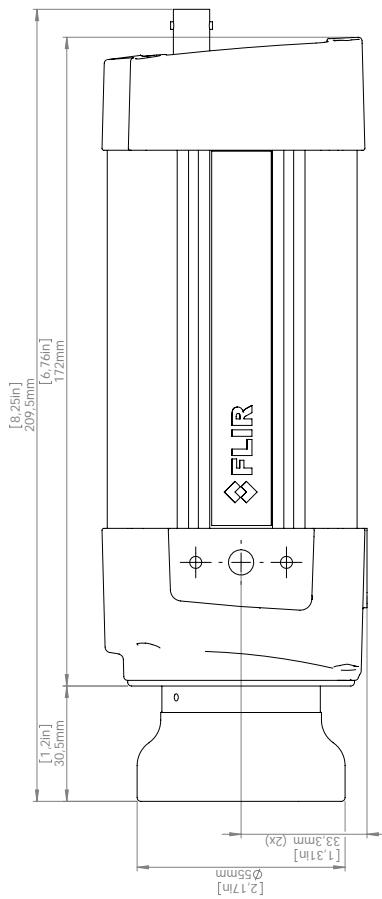
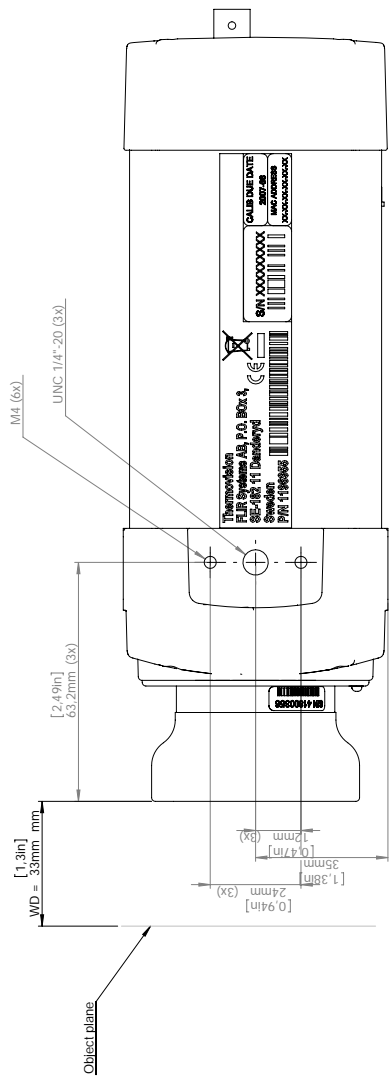
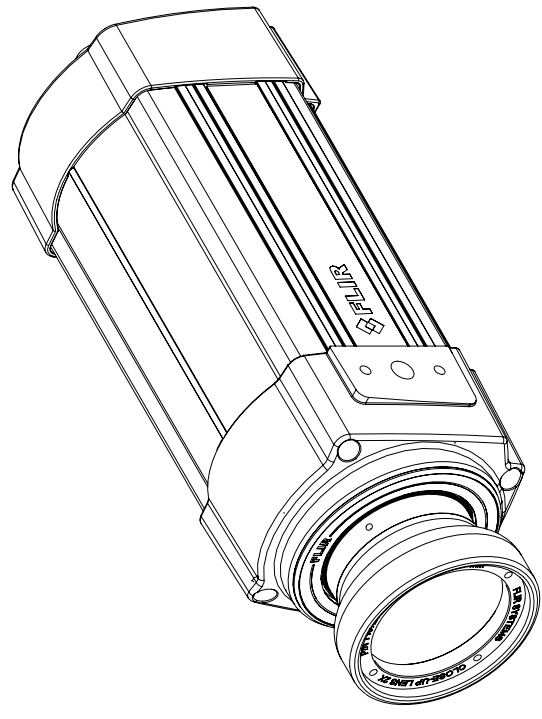
# Camera with Close-up lens 1X (25 µm) incl support



For additional dimensions see page 1

Modified	2012-04-18	Check	CAHA	Drawn by	R&D Thermography
Drawn	CAHA	Scale	1:1	Sheet	6(8)
Drawn No.	T125002	Sheet	A	Part No.	FLIR A33xx/SC3xx

# Camera with Close-up lens 2X (50 µm)



For additional dimensions see page 1

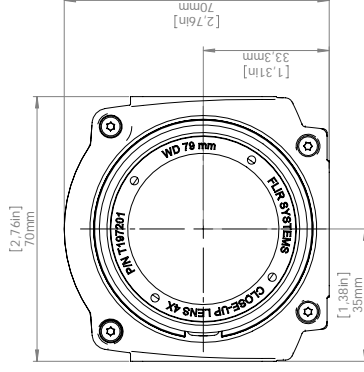
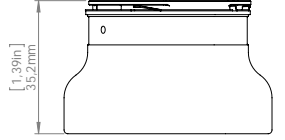
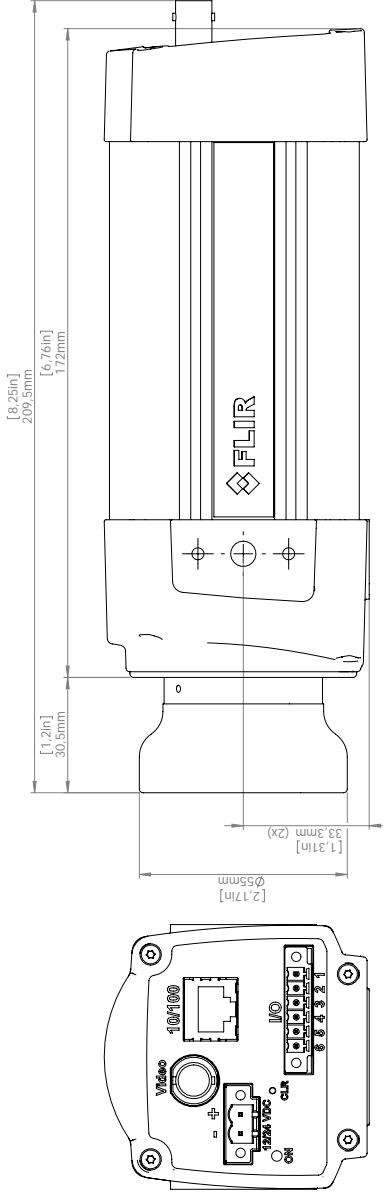
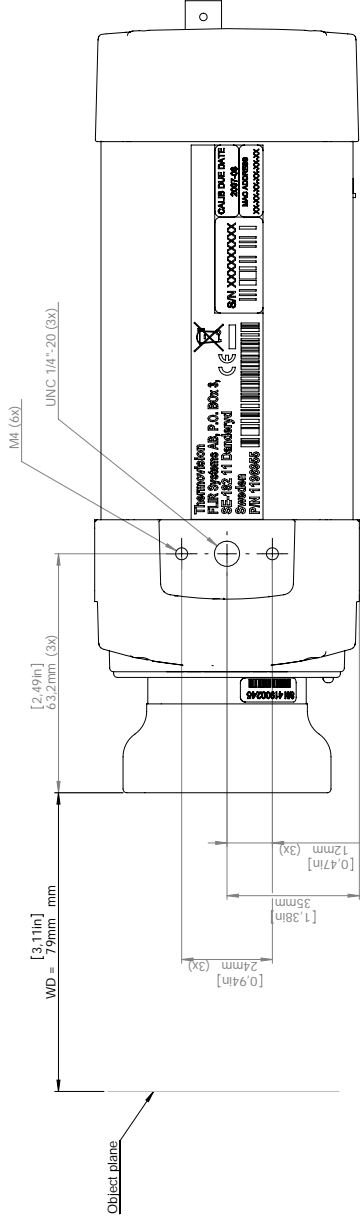
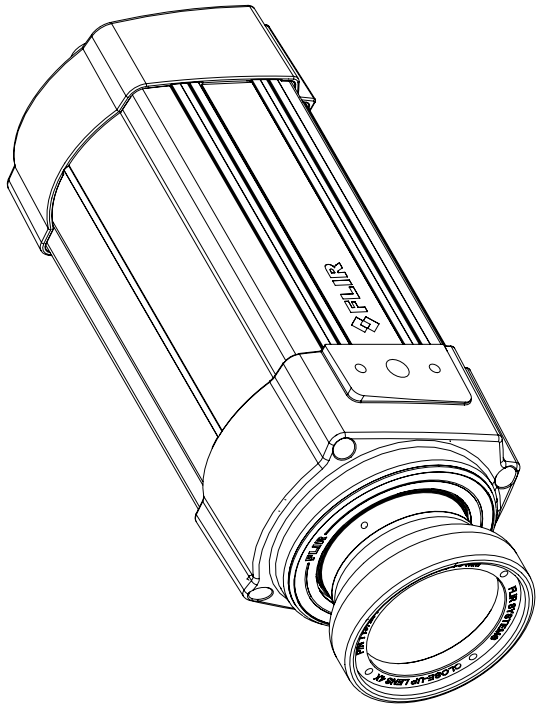
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Denotation						Scale	1:1
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						Size	A



Basic dimensions FLIR A3xx/SC3xx

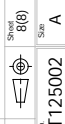
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# Camera with Close-up lens 4X (100 μm)



For additional dimensions see page 1

Modified 2012-04-18	Checked CAHA	Drawn by R&D Thermography	Scale A3	Sheet 1-1	Total 8(8)
Denomination Basic dimensions FLIR A3xx/SC3xx			Drawn No. T125002	Scale A	



## CE Declaration of Conformity

This is to certify that the System listed below have been designed and manufactured to meet the requirements, as applicable, of the following EU-Directives and corresponding harmonising standards. The systems consequently meet the requirements for the CE-mark.

Directives:

**Directive 2004/108/EC; Electromagnetic Compatibility**

Standards:

**Emission: EN 61000-6-4; Electro magnetic Compatibility  
Generic standards - Emission**

**Immunity: EN 61000-6-2; Electro magnetic Compatibility;  
Generic standards - Immunity**

System: **FLIR A310pt series**

FLIR Systems AB  
Quality Assurance



Björn Svensson  
Director